
3.2 Revisions to the Habitat Conservation Plan

Contents:

Executive Summary

No change

I. Introduction

DNR's Habitat Conservation Plan

No change

Species Covered by the HCP

No change

Land Covered by the HCP

pg. I.2 - change second full paragraph:

In Washington, the range of the northern spotted owl includes all of the western part of the state as well as lands on the east slopes of the Cascade Range. ~~DNR's habitat conservation plan covers DNR-managed trust lands within the spotted owl's range, except for those lands classified as urban or agricultural in DNR's geographic information system or leased for urban uses.~~ This HCP covers all DNR-managed forest lands within the range of the northern spotted owl, excluding those lands designated as urban or leased for commercial, industrial, or residential purposes and those lands designated as agricultural. All DNR management activities on these lands are covered. The total area of trust lands covered by the HCP is approximately 1,630,000 acres, of which all but about 50,000 acres are forested...

pg. I.5 - change the last paragraph:

While not subject to the HCP, DNR is given credit for the habitat contributions provided by these lands in terms of meeting the conservation objectives of the HCP. Whether these lands continue to provide this such contributions to the conservation objectives, and the remedy if they do not, will be discussed at each of the scheduled comprehensive reviews. (See the Implementation Agreement.) DNR's management of the Natural Area Preserves and Natural Resource Conservation Areas is not expected to increase the level of take for any species covered by the incidental take permit. DNR's management of these lands shall maintain the conservation objectives described in Chapter IV of the draft HCP. Should an unforeseen circumstance arise that increases the level of take, DNR will follow the process for making a major amendment to the HCP and ITP as outlined in the Implementation Agreement. Management of Natural Area Preserves and Natural Resource Conservation Areas is not intended to alter DNR's obligations for mitigation as set forth in this HCP.

Organization of the Planning Area

No change

II. Planning Context

The Trust Duties

No change

The Endangered Species Act

No change

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|--|-----------|
| Federal Plans and Rules for Recovery of the Northern Spotted Owl and Marbled Murrelet | No change |
| Other Wildlife Statutes and Regulations | No change |
| Environmental Laws | No change |
| The State Forest Practices Act | No change |
| DNR's Forest Resource Plan | No change |

III. Biological Data for Species Covered by the HCP

| | |
|---------------------------------------|-----------|
| A. Northern Spotted Owl | No change |
| Species Ecology/Literature Review | No change |
| Spotted Owls on the Olympic Peninsula | No change |
| DNR's Survey Data | No change |
| B. Marbled Murrelet | No change |

Species Ecology/Literature Review

pg. III.42 - insert paragraph before subheading Mortality at Sea:

The Service has designated critical habitat for the marbled murrelet (61 Federal Register no. 102 pp. 26255-26320). Most of this habitat designation includes lands that are to be managed as Late Successional Reserves under the President's Northwest Forest Plan (USDA and USDI 1994 a and b). Some nonfederal land has been included, the vast majority of which is DNR-managed land. Most of this land occurs in southwest Washington and on the Olympic Peninsula. The Service will conduct an assessment of the effects of the proposed HCP on designated critical habitat on DNR-managed lands in its Biological Opinion.

DNR's Forest Habitat Relationship Studies

pg. III.45 - insert into the first paragraph following the Definitions section:

Observations will be made and data recorded according to procedures described in Methods for Surveying Marbled Murrelets in Forests: A Protocol for Land Management and Research (Ralph et al. 1994) and its 1995 supplement (Ralph et al. 1995b) and any subsequent updates or modifications as required by the Service.

C. Other Federally Listed Species Within the Range of the Northern Spotted Owl

| | |
|-----------------------------|-----------|
| Oregon Silverspot Butterfly | No change |
|-----------------------------|-----------|

Aleutian Canada Goose

pg. III.47 - delete fourth paragraph and replace with:

The Aleutian Canada goose (*Branta canadensis leucopareia*), a subspecies of the Canada goose, was downlisted by the federal government from endangered to threatened in 1990 (Federal Register v. 55, p. 51112). The subspecies is listed as endangered by the state. The subspecies is distinguished from the other locally ubiquitous species by a broad white

ring at the base of the neck. A major cause of the early decline of the Aleutian Canada goose was predation by foxes and other small mammals in the subspecies' nesting areas which are located on Buldir and Chagulak islands in the Aleutian Archipelago and on Kaliktagik in the Semidi Islands in Alaska. In the early 1800s, foxes were introduced onto the Aleutian Islands and neighboring islands as a fur supply, and some rodents were inadvertently introduced with the landing of ships. The winter range was not defined until the early 1970s. Wintering areas extend from Alaska to California and into parts of Japan. From less than 800 individuals in 1975, their numbers have increased to 12,000-14,000 individuals in 1994. The most recent counts indicate about 20,000 individuals. Currently the San Joaquin Valley, Northern California coast, and Sacramento Valley form the subspecies' main wintering area, but they also winter in western Oregon and southwestern Washington. They regularly stop in the Willamette Valley of Oregon in September or October. Their winter range is expanding as the population increases. The species may occur in the area covered by the HCP but only as a migrant or winter resident. Habitat used during migration or winter residency includes lakes, ponds, wetlands, grasslands, and agricultural fields. Control of foxes, use of seasonal Canada goose hunting closures to reduce incidental take, and conversion to nontoxic shot have all contributed to the recovery of the subspecies.

| | |
|------------------|-----------|
| Bald Eagle | No change |
| Peregrine Falcon | No change |
| Gray Wolf | No change |

Grizzly Bear

pg. III.50 - change first paragraph under heading Grizzly Bear:

...However, these habitats alone would not be sufficient for supporting this species. Areas with little human disturbance may be preferred as habitat; ~~however, no actual analysis has been conducted in Washington to confirm this speculation (Almack et al: 1993)~~ many studies have shown the potential negative effect of human disturbance on grizzly bears (McLellan and Shackleton 1988; Kawsorn and Manley 1989; Mace and Manley 1993).

pg. III.50 - change second paragraph under heading Grizzly Bear:

All naturally vegetated land types are considered suitable grizzly bear habitat. Den sites of grizzly bears can be found in nearly any type of forest, but are typically in coniferous forests. Bears normally select den sites on steep slopes ~~above 5,670 feet~~ near the tree line (Almack 1986). Bears forage in many vegetation types in order to obtain sufficient plant and animal foods...

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| Columbian White-tailed Deer | No change |
| D. Salmonids and the Riparian Ecosystem | No change |
| Introduction | No change |
| Anadromous Salmonid Life Cycle | No change |

Bull Trout Life Cycle

pg. III.54 - change first paragraph under "Bull Trout Life Cycle"

The bull trout is a ~~category 1~~ candidate for federal listing. The genus *Salvelinus*, also known as Charr, belongs to the family Salmonidae...

Salmonid Habitat Needs and the Riparian Ecosystem
Status and Distribution

No change
No change

E. Other Species of Concern in the Area Covered by the HCP

pg. III.75 - add second paragraph:

At the time of writing the draft HCP and the draft EIS, the USFWS used a system of classifying species that were candidates for listing as threatened or endangered into separate categories. Category 1 species were those for which the Service had sufficient information to issue a proposal for listing. Category 2 species were those for which existing information indicated that listing was possibly appropriate but sufficient data did not exist on the biological status of the species or threats to that species to warrant the issuance of a proposed rule. Both category 1 and category 2 species were considered as species of concern on the draft HCP and EIS. On February 28, 1996, the Service published an updated list of candidate species using a revised categorization system in the (Federal Register v. 61 no. 7596; USFWS 1996). Former category 1 species are now referred to simply as candidates for listing. Former category 2 species are no longer considered candidates for listing, though most of them have been retained on a list of federal species of concern (Federal Register v. 61 no. 26256 and USFWS list (1996). There are now two species in the HCP planning area that are candidate species - the spotted frog and bull trout. This appendix of the FEIS now reflects the change in federal candidate status of unlisted species of concern. Descriptions of former category 2 taxa are retained and still considered species of concern for the purposes of this HCP.

Candidate Species for Federal Listing, State-listed Species, and Candidate Species for State Listing

Mollusks

pg. III.78 - change first paragraph:

At least 120 species of mollusks occur in Washington. However, many species have yet to be described, and the distribution and habitat requirements of those that have been described are still not well understood (Frest 1993; Frest and Joannes 1993; Neitzel and Frest 1993). None of the 120 species are currently listed by either the federal or state government. Four are candidates for federal listing (Federal Register v. 59, no. 58982 9028); Three are federal species of concern (Federal Register v. 61 no. 7596; USFWS 1996) and numerous others are species of special concern.

pg. III.78 - change second paragraph:

This section is a summary of information obtained primarily from three mollusk experts: T. Burke (Washington Department of Wildlife), T. Frest (Deixis Consultants, Seattle), and A. Stock (Washington Natural Heritage Program). It addresses only the three federal candidate species of concern that may occur in the area covered by the HCP...

Arthropods

pg. III. 79 - change second full paragraph:

Six species of arthropods that are known to occur or may occur in the HCP planning units are considered species of concern. One is federally listed (see Section C of this chapter titled Other Federally Listed Species) four are ~~candidates for~~ federal species of concern listing (~~Federal Register v. 59, no. 219, p. 58982-9028~~), and one is a candidate for state listing.

pg. III.79 - change paragraph under heading Beller's Ground Beetle:

The Beller's ground beetle (*Agonum belleri*) is a ~~candidate for~~ federal species of concern and a candidate for state listing (WDW 1993a). It occurs exclusively in eutrophic spegnum bogs of Washington, Oregon, and southwestern British Columbia (Johnson 1986; WDW 1991) that are associated with lakes below 3,280 feet in elevation, where it likely scavenges plant and animal material (Dawson 1965; WDW 1991)...

pg. III.79 - change paragraph under heading Hatch's Click Beetle:

Hatch's click beetle (*Eanus hatchi*) is a ~~candidate for~~ federal species of concern and a candidate for state listing (DW 1993a). Like Beller's ground beetle, Hatch's click beetle inhabits eutrophic sphagnum bogs in or near lakes at less than 3,280 feet in elevation (WDW 1991)...

pg. III.79 - change paragraph under heading Fender's Soliperlan Stonefly:

Fender's soliperlan stonefly (*Soliperla fenderi*) is a ~~category 2 candidate for~~ federal species of concern listing. One specimen was collected from St. Andrews Creek in Mount Rainier National Park...

pg. III.80 - change paragraph under heading Lynn's Clubtail:

Lynn's clubtail (*Gomphus lynnae*) is a ~~category 2 candidate for~~ federal species of concern listing. This species of dragonfly is known to prefer large rivers, but it has also been recorded at mountain lakes...

Fish

pg. III.80 - change paragraph under heading Fish:

Four ~~federal candidate~~ species of fish considered federal species of concern (~~Federal Register v. 59, no. 219, p. 58982-9028 v. 61 no. 7596; USFWS 1996~~), not including anadromous salmonids and bull trout, are known to occur in the HCP planning units; one of these species is also a candidate for state listing. Anadromous salmonids and bulltrout are discussed in Section D of this chapter titled Salmonids and the Riparian Ecosystem.

pg. III.80 - change paragraph under heading River Lamprey:

The river lamprey (*Lampetra ayresi*) is a federal candidate for listing as a threatened species of concern. The main threats to its continued existence are thought to be dams on mainstream rivers and habitat degradation...

pg. III.81 - delete the heading Green Sturgeon and two related paragraphs

pg. III.81 - change paragraph under heading Olympic Mudminnow:

The Olympic mudminnow (*Novumbra hubbsi*), a candidate for both federal (category 2) state listing in Washington, is jeopardized by its limited distribution and population isolation in drainages along the west coast of Washington, the Chehalis River, and the lower Deschutes River (Meldrim 1968; Harris 1974, Wydoski and Whitney 1979).

Amphibians

pg. III.81 - change last paragraph on page:

Seven species of amphibians that occur in the area covered by the HCP are considered species of concern. ~~Five are~~ One is a candidates for federal listing (Federal Register v. 59, no. 219, p. 58982-9028), and four are federal species of concern. One of these is already listed by the state...

pg. III.82 - change first paragraph under heading Larch Mountain Salamander:

The Larch Mountain salamander (*Plethodon larselli*) is a ~~category 2 candidate~~ for federal listing species of concern; it is already listed by the state as sensitive (WDW 1992a). It was first described a subspecies of the Van Dyke's salamander (*Plethodon vandykei*) (Burns 1954).

pg. III.83 - change first paragraph under heading Tailed Frog:

The tailed frog (*Ascaphus truei*) is a federal candidate for listing as a threatened species of concern. Its range lies between the Cascades and the Pacific coast from southwestern British Columbia to northwestern California, with a disjunct ~~portion~~ area in southeast Washington, northeast Oregon, and central Idaho (Leonard et al. 1993)...

pg. III.84 - change first paragraph under heading Northern Red-legged Frog:

The northern red-legged frog (*Rana aurora aurora*) is currently a ~~category 2 candidate~~ for federal listing species of concern (~~WDW 1993a~~). Northern red-legged frogs inhabit moist and riparian forests, typically below 2,790 feet in elevation in the Pacific Northwest (Nussbaum et al 1983; Stebbins 1985)...

pg. III.85 - change first paragraph under heading Cascades Frog:

The Cascades frog (*Rana cascadae*) is currently a ~~category 2 candidate~~ for federal listing species of concern (~~WDW 1993a~~). It is found in the Olympic Mountains and in the Cascade Range of Oregon, Washington and northern California, typically above 2,625 feet and in small bodies of water rather than in large lakes (Syse 1975; O'Hara 1981; Nussbaum et al. 1983)...

pg. III.85 - change last paragraph on page:

The spotted frog (*Rana pretiosa*) is currently a candidate for both federal (~~category 1~~) and state listing (WDW 1993a; Federal Register v. 61 no. 7596; USFWS 1996). Historically, spotted frogs ranged north to extreme southeastern Alaska, south to central Nevada and central Utah, and east to western Montana and northwestern Wyoming...

Reptiles

pg. III.86 - change first paragraph under heading Reptiles:

Two species of reptiles that occur in the area covered by the HCP are considered species of concern. One is a ~~candidate for federal listing~~ species of concern (Federal Register v. ~~59, no. 219, p. 58982-9028~~ v. 61 no. 7596; USFWS 1996) and is already listed by the state; the other is a candidate ~~only~~ for state listing.

pg. III.86 - change last paragraph on page (under heading Northwestern Pond Turtle):

The northwestern pond turtle (*Clemmys marmorata marmorata*) is currently a ~~category 2 candidate for federal listing~~ species of concern and is listed by the state as endangered (WDW 1993a). This species occurs at elevations from sea level to 6,000 feet from extreme southwestern British Columbia to the Sacramento Valley in California, principally west of the Sierra-Cascade crest (Bury 1970; Stebbins 1985)...

Birds

pg. III.88 - change first paragraph on page (under the heading Birds):

In addition to the northern spotted owl and marbled murrelet, 15 bird species that occur in the area covered by the HCP are considered species of concern. Three of these species are federally listed and are discussed in Section C of this chapter titled Other Federally Listed Species. Five bird species are ~~candidates for federal listing~~ species of concern (Federal Register v. 59, no. 219, p. 58982-9028 v. 61 no. 7596; USFWS 1996), one is already listed by the state, and seven more are candidates for listing only by the state.

pg. III.88 - change first paragraph under heading Harlequin Duck:

The harlequin duck (*Histrionicus histrionicus*) is a federal ~~candidate for listing as a threatened~~ species of concern ~~but~~ and is also a state game animal (WDFW 1995b). Harlequin nesting success is highly sensitive to human disturbance...

pg. III.88 - change the paragraph under heading Northern Goshawk:

The northern goshawk (*Accipiter gentilis*) is a state (WDW 1993a) and ~~federal~~ candidate for listing as a threatened species and a federal species of concern...

pg. III.90 - change paragraph under heading Black Tern:

The black tern (*Chlidonias niger*), a ~~category 2 candidate for federal listing~~ species of concern is a common summer resident in eastern Washington and a migrant in western Washington (Wahl and Paulson 1991). It appears to migrate primarily along the coast (Haley 1984), but probably uses the Columbia River as a route from breeding areas in eastern Washington and British Columbia.

pg. III.92 - change paragraph under heading Olive-sided Flycatcher:

The olive-sided flycatcher (*Contopus borealis*) is a federal candidate for listing as a threatened species of concern. There may be evidence of a decline in the number of olive-sided flycatchers in the western United States, although data is are weak and the causes of this decline are uncertain (Hejl 1994; DeSante and George 1994)...

pg. III.92 - change the paragraph under heading Little Willow Flycatcher:

The little willow flycatcher (*Empidonax traillii brewsteri*) is a federal candidate for listing as a threatened species of concern. Data indicate a decline in the number of little willow flycatchers in the Pacific Northwest (Paulson 1992), although there is uncertainty about the causes...

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| Mammals | No change |
| F. Listed and Candidate Plants | No change |
| Non-vascular Plants and Fungi | No change |

Vascular Plant Taxa of Concern

pg. III.100 - delete last heading and last paragraph on page replace with:
FEDERAL CANDIDATE AND SPECIES OF CONCERN

There are numerous vascular plant taxa known to occur, or suspected of presently occurring, in the area covered by the HCP that are candidates for federal listing under the Endangered Species Act or are species of concern to the U.S. Fish and Wildlife Service. These are listed in Tables III.16 and III.17. Additional information about these species can be obtained from DNR's Natural Heritage Program.

IV. The Habitat Conservation Plan

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|---|-----------|
| A. Minimization and Mitigation for the Northern Spotted Owl in the Five West-side and All East-side Planning Units | No change |
| Conservation Objective | No change |

Conservation Strategy for the Five West-side Planning Units

pg. IV.3 - last paragraph:

Lands identified to provide demographic support and to contribute to maintaining species distribution shall be managed as NRF habitat. For the purposes of this HCP, NRF refers to habitat that is primarily high quality roosting/foraging habitat with sufficient amounts of nesting structure interspersed so that the entire area can be successfully utilized by reproducing spotted owls. See description of rationale for habitat definitions later in this section. Lands identified to facilitate dispersal shall be managed as dispersal habitat. Stand conditions for each of these habitat types are defined below. DNR-managed lands selected for NRF habitat management and dispersal habitat management are shown for each of the five west-side planning units in Maps IV.1-IV.5.

pg. IV.4 - fifth paragraph:

The amount of habitat on the combination of DNR NRF areas and federal reserves existing at the time timber harvest is planned for a WAU that contains designated NRF areas will be determined using the best information available. As the HCP is implemented, the amount of habitat on DNR-managed lands shall be field verified through a landscape assessment process. After initial field verification, habitat levels in WAUs containing DNR NRF management areas should be assessed every 10 years. DNR will not be required to field-verify habitat in federal reserves, but will rely on updated federal habitat inventories for lands within federal reserve status. Depending on the habitat conditions that exist at the time a WAU is entered for timber management, one of four possible scenarios would apply:

pg. IV.6 - add new subparagraph (c):

If more than 200 acres of sub-mature habitat occurs in the area in which this habitat serves as a buffer, *and* the WAU is over its habitat target, the amount over 200 acres can be harvested. Habitat of equal or better quality that is adjacent to a portion of the 300 acre nest patch or the remainder of the original 200 acre sub-mature buffer that will not be harvested must be immediately available to replace what is harvested - i.e., this provision cannot result in a degradation of habitat quality around the nest patch. If such harvest is planned during the breeding season, the harvest unit will be surveyed for spotted owl occupancy. Survey stations will be established such that an area 0.25 mile beyond the sale unit boundary is covered by the surveys. Four visits will be conducted in a single year at least one week apart. If a detection is made within the harvest area or within 0.25 mile of it, seasonal restrictions will apply. If no detections are made, the sale unit will be available for harvest for four years.

pg. IV.6 - change subparagraph (c) to subparagraph (d) and change text:

(c d) Nest habitat patches shall consist of the highest quality nesting habitat available in each 5,000-acre block and shall be identified using one of the following methods, listed in order of preference. Identification of nest habitat patches shall occur during the first year of HCP implementation. The Services will review placement of nest patches at the 1-year review.

pg. IV.6 and IV.7 - change paragraph i:

The location of known status 1 and 2 spotted owl site centers (sites where spotted owl pairs have been located) should be used as a starting point for delineating 300 acres of nesting habitat...All available Type A habitat should be included before Type B habitat is counted as part of a 300-acre nest patch.

pg. IV.7 - change paragraph iii:

...Forest stands that meet the Type A or B definitions can be counted toward the 300 acres of nesting habitat. All available Type A habitat should be included before Type B habitat is counted as part of a 300-acre nest patch.

pg. IV.7 - change paragraph v:

If there are no 300-acre nest patches that meet either the high-quality habitat definition or the Types A or B habitat definitions within a particular 5,000-acre block, the next highest quality 300-acre habitat patches should be identified...

pg. IV.7 - change paragraph d e:

(de) ~~Nesting areas~~ The 300 acre nest patches shall be deferred from harvest until DNR can demonstrate the successful application of silvicultural techniques to create functional nesting habitat in managed stands...

pg. IV.8 - replace paragraph (c) with:

(c) DNR will submit proposed exceptions to the Service. If the Service does not agree with the proposal, a multi-agency science team, including staff specialists from DNR, the Service, and any third party scientist the Service deems appropriate, shall be convened to resolve any outstanding issues.

pg. IV.9 - change second paragraph:

~~If a spotted owl nest site is known to occur in a planned harvest area, seasonal harvest restrictions times to avoid the breeding season shall be observed within a 0.7 mile radius of the nest site. In WAUs that are above the habitat target, DNR will avoid harvest of habitat within 0.7 mile of known nest sites during the breeding season. DNR will use any updated information on nest site locations provided by the Service.~~

pg. IV.9 - change the fifth paragraph:

~~When harvesting spotted owl habitat outside of designated NRF areas, DNR will consider recommendations of the USFWS for scheduling potential take of spotted owl site centers during the first decade. This will be done in order to retain sites that may have a valuable short-term contribution to the population. Otherwise, the provisions of the spotted owl strategy do not place any special conditions upon forest stands in WAUS that are not designated to provide habitat for the spotted owl...~~

pg. IV.9 - change the paragraph under heading “Management in WAUs Not Designated to Provide Habitat for Spotted Owls”:

~~...If a spotted owl nest site is discovered during timber sale planning in the stand not designated to provide spotted owl habitat, seasonal harvest restrictions timed to avoid the breeding season shall be observed with a 0.7 mile radius of 70 acre core surrounding the nest site.~~

pg. IV.9 - change the first paragraph under “Salvage Operations and Activities Related to Forest Health”:

DNR's HCP conservation strategies include commitments to develop and maintain wildlife habitat (in this case, NRF habitat and dispersal habitat for the northern spotted owl) over time in designated amounts and areas. In general, such conservation commitments made in the HCP will take priority over other DNR management considerations. However, these conservation commitments may, in some cases, be inconsistent with activities DNR must consider under state statutes pertaining to salvage (RCW 79.01.795) and forest health (RCW 76.06.040) ~~may require DNR to make~~

decisions that may not be consistent with the habitat conservation commitments made in the HCP.

pg. IV.9 - change the second paragraph under “Salvage Operations and Activities Related to Forest Health”:

For example, salvage operations might be considered by the DNR for reasons such as windthrow, fire, disease, or insect infestation. Activities related to forest health might include risk reduction through underburning, thinning, or harvest to stop spread of disease or insect infestation.

pg. IV. 9 - change the third paragraph under “Salvage Operations and Activities Related to Forest Health”:

When DNR determines that ~~consideration of activities inconsistent with the commitments made in the HCP is necessary~~, consultation such potential exists, discussions shall be held with the U.S. Fish and Wildlife Service. ~~DNR shall provide the U.S. Fish and Wildlife Service with complete descriptions of the situation making consideration of such activities necessary, the activities under consideration, and the expected impacts of the activities to the situation and to the HCP conservation strategies.~~ If the U.S. Fish and Wildlife Service determines it is determined that such activities would adversely impact the HCP conservation strategies, DNR and the U.S. Fish and Wildlife Service shall identify additional mitigation that would allow the necessary activities to go forward.

pg. IV.9 - add a fourth paragraph under “Salvage Operations and Activities Related to Forest Health”:

In conducting salvage activities, DNR shall, to the extent practicable:

- minimize the harvest of live trees to those necessary to access and complete the salvage activity, and
- maximize and clump the retention of large, safe, standing trees to provide future snags; and consider opportunities to retain concentration of snags and/or coarse woody debris which may benefit species such as black-backed and three-toed woodpeckers.

pg. IV.10 - add to end of the paragraph with heading “Support of Federal Reserves”:

Proposals for such changes would be developed by DNR and submitted to the Services. A multi-agency science team may be convened to resolve questions regarding the biological basis of the proposal.

pg. IV.10 - change the first bullet of the fourth paragraph:

- At least 31 trees per acre are greater than or equal to 21 inches dbh with at least 15 trees, of those 31 trees, per acre greater than or equal to 31 inches dbh.

pg. IV.12 - add to end of the paragraph with heading “Nesting Habitat”:

Proposals for such changes would be developed by DNR and submitted to the Services. A multi-agency science team may be convened to resolve questions regarding the biological basis of the proposal.

pg. IV.15 - change the fourth paragraph:

The recommendation for arranging nesting habitat in a 300 acre nest patch within a larger 500 acre patch of suitable habitat is based on studies that demonstrate increasing probability of spotted owl occupancy with increasing amount of habitat close to site centers and studies that show concentrated use of habitat within 0.7 mile of site centers. In a study of 125 61 spotted owl sites on the east slope of the Cascades, Irwin and Martin (1992) demonstrated that the probability of occupancy increase with the amount of suitable habitat in a 500-acre circle. Their study showed that probability of occupancy exceeded 90 percent where there was more than 300 acres of habitat within a 0.5-mile-radius circle. found that spotted owl sites that were occupied either one or two years of a two-year survey had an average of 252 acres (s.d. = 20) of suitable habitat within a 0.5 mile circle in managed stands and 316 acres (s.d. = 20) in a 0.5 mile circle in unmanaged stands. There was a strong statistical relationship between the amount of habitat found at sites with 0, 1, or 2 years of occupancy at 0.5, 1.0, 1.5, and 2.0 miles from the site center with the strongest relationship occurring at 0.5 mile. Data on the amount of habitat found within 0.5 mile of occupied sites was used in a logistic regression analysis to predict occupancy. Their analysis predicted a 90 percent chance of pair site occupancy when there were 300 acres of suitable habitat within 0.5 mile of a site center. This study provided predictive abilities and did not establish minimum amounts of habitat needed by owls. As stated above, this study was conducted on the east side of the Cascade Crest where owl responses to habitat quality and quantity are different from forests on the west side of the Cascade Crest. DNR believes that patches of this size, in combination with surrounding sub-mature forest will provide the necessary habitat to support nesting owls in proximity to federal lands.

pg. IV.16 - change the first paragraph:

...Based on this information, it is reasonable to arrange high-quality nesting habitat in contiguous 500-acre patches (300 acres of high-quality nesting habitat and 200 acres of at least sub-mature habitat) within a 0.7-mile-radius circle.

Conservation Strategy for the Three East-side Planning Units

pg. IV.20 - change first paragraph after the bullets:

If a spotted owl nest sit is known to occur in a planned harvest area, ~~season harvest restrictions timed for the breeding season shall be observed within 0.7-mile radius of the nest site.~~ In WAUs that are above the habitat target, DNR will avoid harvest of habitat within 0.7 mile of known nest sites during the breeding season. DNR will consider any updated information on nest site locations provided by the Service.

pg. IV.21 - first paragraph:

When harvesting spotted owl habitat outside of designated NRF areas, DNR will consider recommendations of the USFWS for scheduling potential take of spotted owl site centers during the first decade. This will be done in order to retain sites that may have a valuable short-term contribution to the population. Otherwise, ~~the~~ provisions of the spotted owl strategy do not place any special conditions upon forest stands in WAUs that are not

designated to provide habitat for the spotted owl..season shall be observed within a 0.7 mile radius of 70 acre core surrounding the nest site.

pg. IV.21 - delete all three paragraphs under “Salvage Operations and Activities Related to Forest Health” and replace with:

DNR’s HCP conservation strategies include commitments to develop and maintain wildlife habitat (in this case, NRF habitat and dispersal habitat for the northern spotted owl) over time in designated amounts and areas. In general, such conservation commitments made in the HCP will take priority over other DNR management considerations. However, these conservation commitments may, in some cases, be inconsistent with activities DNR must consider under state statutes pertaining to salvage (RCW 79.01.795) and forest health (RCW 76.06.040).

For example, salvage operations might be considered by DNR for reasons such as windthrow, fire, disease, or insect infestation. Activities related to forest health might include risk reduction through underburning, thinning, or harvest to stop spread of disease or insect infestation.

When DNR determines that such potential exists, discussions shall be held with the U.S. Fish and Wildlife Service. If it is determined that such activities would adversely impact the HCP conservation strategies, DNR and the U.S. Fish and Wildlife Service shall identify additional mitigation that would allow the necessary activities to go forward.

In conducting salvage activities, DNR shall, to the extent practicable:

- I minimize the harvest of live trees to those necessary to access and complete the salvage activity, and
- I maximize and clump the retention of large, safe, standing trees to provide future snags.

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| Rationale for the Spotted Owl Conservation Objective and Strategies | No change |
| Current Habitat and Projected Habitat Growth in Nesting, Roosting, and Foraging and Dispersal Management Areas | No change |
| Potential Benefits and Impacts to Spotted Owls | No change |
| B. Minimization and Mitigation for the Marbled Murrelet in the Five West-side and the Olympic Experimental State Forest Planning Units | No change |

Conservation Objective

pg. IV.39 - change the second paragraph:

While the amount of scientific information that is available for this species has increased dramatically in recent years, it is still extremely limited. Additionally, no recovery plan and no designation of critical habitat for this species have has been adopted by the federal government, although a draft proposals for both have has been recently released. A final rule for critical habitat has been published. (See the discussion of these draft proposals in Chapter II.)

Interim Conservation Strategy

pg. IV.40 - change Step 3:

Following completion of the habitat relationship study in each planning unit, marginal habitat types that would be expected to contain a maximum of 5 percent of the occupied sites on DNR-managed lands within each planning unit shall be identified and made available for harvest. However, no known occupied sites will be released; they shall all be protected.

pg. IV.40 - change Step 4:

In each planning unit, all acreage constituting the higher quality habitat types (i.e., those not identified as available for harvest under Step 3) shall be included in an inventory survey, using Pacific Seabird or other ~~commonly accepted~~ protocol approved by the USFWS if available, to locate occupied sites. Outside of Southwest Washington¹, surveyed, unoccupied habitat will be released for harvest if it is not within 0.5 mile of an occupied site and after harvest, at least 50 percent of the suitable marbled murrelet habitat on DNR-managed lands in the WAU would remain. Within Southwest Washington¹, surveyed, unoccupied habitat will **not** be released for harvest unless (a) the long-term plan (see Step 5 below) for the applicable planning units has been completed or, (b) at least 12 months have passed since the initiation of negotiations of the draft long-term plan without completion of those negotiations. ~~Surveyed unoccupied habitat will be available for harvest if such harvest adheres to all other provisions of the HCP, Forest Practices regulations, and policies of the Board of Natural Resources.~~

pg. IV. 40 - change Step 5:

After Steps 1-4 are completed for each planning unit, the information obtained during these and other research efforts shall be used to develop a long-term conservation plan for marble murrelet habitat on DNR-managed HCP lands within that planning unit. The habitat relationship study, inventory survey, and development of the long-term plan will occur consecutively within each planning unit - i.e., there will be no time gaps between Steps 2, 3, and 4. Negotiation of the draft long-term conservation plan for a planning unit will commence with the Service within 12 months of completion of the inventory surveys for that planning unit. All decisions made in Steps 1-4 above shall be reviewed as part of this process. (For example, it may be that some of the marginal habitat or surveyed unoccupied habitat made available for harvest in Step 3 or Step 4 will be identified as important to protect in the long-term plan.) ~~These plans shall then be included in the HCP by amendment.~~ Once all individual planning unit plans are complete, a comprehensive review shall be conducted and modifications made if required. DNR will submit its proposal for long-term plans to the Service for approval. DNR may convene a multi-agency science team to resolve issues of disagreement over the proposal.

¹ For the purposes of the marbled murrelet strategy, Southwest Washington is defined as that portion of the Columbia Planning Unit west of Interstate 5 and that portion of the South Coast Planning Unit that is located south of Highway 8.

Habitat Definitions

pg. IV.42 - change first paragraph:

...Platforms are counted only in conifer trees and only if located within the live crown. When trained staff are counting platforms for the number per acre calculation, all platforms fitting this description should be included...

Possible Components of a Credible Long-term Conservation Strategy

pg. IV.44 - insert new paragraph prior to heading Potential Benefits and Impacted to Marbled Murrelets:

The long-term conservation plan developed by DNR would likely include information on the location of occupied sites, the distribution of habitat in each planning unit, current research results, landscape-level analysis and considerations, and the site-specific management plans developed by DNR. The long term plan would address such factors as developing habitat where gaps exist, developing or maintaining replacement habitat, and would protect the vast majority of occupied sites. This process should result in a comprehensive, detailed landscape-level plan that would help meet the recovery objectives of the USFWS, contribute to the conservation efforts of the President's Northwest Forest Plan, and make a significant contribution to maintaining and protecting marbled murrelet populations in western Washington over the life of the HCP.

Potential Benefits and Impacts to Marbled Murrelets

pg. IV.44 - add to the end of the first bullet:

There will likely be a small impact to the population from not including potential habitat on DNR-managed lands beyond 50 miles from marine waters.

C. Minimization and Mitigation for Other Federally Listed Species in All Planning Units

Oregon Silverspot Butterfly

pg. IV. 45 -new second paragraph under heading "Oregon Silverspot Butterfly":

In addition, DNR will not harvest timber, construct roads, or apply pesticides within 0.25 mile of an individual occurrence of an Oregon silverspot butterfly, documented by WDFW. In places where DNR believes that effective conservation can be provided in a more efficient way, DNR may present to the USFWS a site-specific management plan that provides adequate protection for the species or habitat occurring at that site. If the USFWS do not approve of the plan, then a multi-agency science team will be convened. The team will evaluate the plan and determine if it is adequate, and if it is not, recommend additional measures that should be taken to make it so.

Aleutian Canada Goose

No change

Bald Eagle

pg. IV.46 - add to the first paragraph:

...Under this HCP, all DNR forest management activities in the area covered by the HCP shall comply with state Forest Practices Rules and state wildlife regulations and shall be consistent with the policies set forth by the Board of Natural Resources. When developing a site management plan for bald eagle habitat pursuant to WAC 232-12-292 DNR will, where appropriate, consider perch/pilot trees and foraging areas associated with nesting sites, winter roost trees, and winter feeding concentration areas. In addition to protection of nesting trees and the immediate vicinity.

Peregrine Falcon

pg. IV.46 - change the last paragraph:

...In addition, in east- and west-side planning units and the Olympic Experimental State Forest, DNR shall restrict public access to DNR-managed lands within 0.5 mile of any peregrine falcon aerie, and DNR, U.S. Fish and Wildlife Service, and Washington Department of Fish and Wildlife shall keep the locations of aeries on DNR-managed lands confidential to the extent permitted by law where practicable:

- I review and, where necessary, manage public access to DNR-managed lands within 0.5 mile of a known peregrine falcon aerie,
- I conduct field review, by staff knowledgeable of peregrine biology and requirements, of all cliffs in excess of 150', and conduct surveys for peregrine falcon aeries at cliffs judged to have likely potential for use,
- I protect ledges on cliffs judged suitable for aeries,
- I retain trees along the base and top of cliffs judged suitable for aeries, especially perch trees along the top of cliffs, and
- I keep the location of peregrine falcon aeries on DNR-managed lands confidential to the extent permitted by law.

Gray Wolf

pg. IV. 47 - Insert new first paragraph under heading Gray Wolf:

The status of the gray wolf within the proposed HCP area is unknown. However, it is likely that even if absent now, wolves will emigrate and reside in this area during the Permit period. Biologically, the fate of the wolf is linked to that of its prey, which includes large herbivores such as elk and deer, and smaller mammals such as the snowshoe hare. No "recovery areas" have yet been designated for the gray wolf in the Washington Cascades. DNR will evaluate the amount of habitat for preferred wolf prey species and prioritize areas that have a higher likelihood of providing adequate habitat for the preferred prey species.

pg. IV.47 - change third paragraph:

Additional conservation of gray wolves and their habitat will be provided by the HCP riparian and spotted owl conservation strategies and by the following specific measures for managing potential gray wolf habitat on DNR-managed lands in the area covered by the HCP. DNR believes that the combination of riparian and marbled murrelet strategies in western Washington, and the spotted owl strategy and improved road management plan in both western Washington and the east-side planning units will provide support to gray wolves. Additionally, DNR will attempt to avoid or minimize potential impacts to gray wolves by maintaining habitat in a condition that allows wolves and their important prey species to meet their essential biological needs by providing:

pg. IV.47 - add new first bullet:

- Den Site and Rendezvous Site Protection

pg. IV.47 - change second bullet:

- DNR, in consultation cooperation with the ~~Washington Department of Fish and Wildlife or U.S. Fish and Wildlife Service~~, shall develop and implement practicable, ~~economically reasonable~~, site-specific plans to limit human disturbance within the wolf habitat management area. If the USFWS does not approve of the plans, then a multi-agency science team will be convened. The team will evaluate the plans and determine if they are adequate, and if not, recommend additional measures that should be taken to make them adequate.

pg. IV.47 - add two additional bullets after last bullet:

- Provisions for Prey Habitat Conditions - Habitat management for wolves is primarily directed at habitat for its prey species (USFWS 1984). The most important prey species in the HCP area are deer and elk. The species use edges between cover (older forest) and forage habitats (stand initiation, shrub/sapling, and younger forest). The creation and maintenance of edge habitat through timber harvest activities will provide adequate habitat for wolf prey species.
- Road Management - DNR will attempt to provide more secure conditions for both prey species and wolves. Minimal contact with humans has been cited as the second most important biological necessity for wolf recovery (USFWS 1984). DNR has been involved in cooperative road closures with WDFW and the Forest Service to restrict vehicular activity to maintain or increase big game security and reduce hunting pressure. DNR will continue to participate in such cooperative activities. Ungulate fawning/calving and wintering areas are areas where wolves are most likely to occur. To the extent practicable, DNR will schedule forest management activities, including road construction and use, to occur at times of the year when wolves are least likely to be present.

Grizzly Bear

pg. IV.48 -insert after the first paragraph on Grizzly bears:

The federal and State wildlife agencies believe that grizzly bears occur, at least occasionally, within the North Cascades Grizzly Bear Recovery Zone. The Recovery Zone contains in excess of 6,000,000 acres including approximately 260,000 acres of DNR-managed forest lands. Less than 100,000 acres of the DNR-managed land, representing less than 2 percent of the Recovery Zone, is included within the area covered by the proposed HCP.

The DNR-managed lands covered by the HCP and within the Recovery Zone can be described as occurring in four locations: Skagit Valley, Spada Lake, the west side of the Methow Valley, and a group of separate sections between Wenatchee and Lake Chelan and surrounded by Forest Service land. In each of these areas, the DNR-managed lands lie on the periphery of the Recovery Zone between Federal ownership and areas of human occupancy and related activity. DNR believes the best use of lands it manages is to serve as a buffer between the federal ownership, where active recovery efforts are most likely to occur, and the areas of increased public use. DNR believes that this role will be sufficiently supported by the combination of other strategies contained within the HCP.

pg. IV.48 - change second Grizzly Bear paragraph:

~~Additional conservation of grizzly bears and their habitat will be provided by the HCP riparian and spotted owl conservation strategies and by the following specific measures for managing potential grizzly bear habitat on DNR-managed lands in the area covered by the HCP. DNR believes that the combination of riparian and marbled murrelet strategies in western Washington, and the spotted owl strategy and improved road management plan in both western Washington and the east-side planning units will provide support to grizzly bears. In addition, DNR proposes to provide the following site-specific measures:~~

pg. IV.48 - change second bullet:

- I** ~~DNR, in consultation~~ cooperation with the ~~Washington Department of Fish and Wildlife or U.S. Fish and Wildlife Service~~, shall develop and implement practicable, ~~economically reasonable~~, site-specific plans to limit human disturbance in the grizzly bear habitat management area.

Columbian White-tailed Deer

No change

D. Riparian Conservation Strategy for the Five West-side Planning Units

Conservation Objectives

pg. IV.51 - add new fifth paragraph:

The Services are prioritizing watersheds for the conservation of salmon. DNR will consider the results of this prioritization when planning its participation in Watershed Analysis.

pg. IV.51 and IV.52 - change last paragraph on p. 51 and first paragraph on p. 52:
As described in Section E D of Chapter III titled Salmonids and the Riparian Ecosystem, salmonid habitat includes the entire riparian ecosystem, and therefore, conservation objective (1) requires maintaining or restoring the riparian ecosystem processes that determine salmonid habitat quality. Also, as described in Section E D of Chapter III, hydrological and geomorphological processes originating in upland areas may also affect salmonid habitat...

Conservation Components

pg. IV.52 - add to end of the fourth full paragraph:

A riparian buffer 100 feet wide shall be applied to both sides of Type 4 waters. Type 4 waters classified after January 1, 1992, are assumed to be correctly classified. Type 4 waters classified prior to January 1, 1992, must either have their classification verified in the field or be assumed to be Type 3 waters. In general it is currently standard practice for DNR staff to physically examine the classification of streams within a management unit when preparing the unit for a timber sale. If an area has already been classified post 1992 and prior to the effective date of this HCP, it is likely in a management activity that is probably sold and/or harvested. Therefore, for all practical purposes, stream typing will be examined or verified in the field whether they were typed before or after 1992.

pg. IV.52 - change sixth paragraph:

In the field, the width of the riparian buffer shall be measured as the slope horizontal distance from, and perpendicular to, the outer margin of the 100 year floodplain active channel margin. ~~For the purpose of mapping and accounting, the width of the riparian buffer will be reported as horizontal distance.~~

pg. IV.52 - delete entire last paragraph and replace with:

Average buffer widths are given in Table IV.7. as average horizontal distances measured outward from the outer margin of the 100-year floodplain on either side of the stream. The 100-year floodplain is the valley-bottom area adjoining the stream channel that is constructed by the stream under the present climatic regime and overflowed at times of very high discharge (i.e., flooding associated with storms of a 100-year recurrence interval; Dunne, T., and L.B. Leopold. 1987). One-hundred-year floodplains commonly are delineated by the Federal Emergency Management Agency (FEMA) on Flood Insurance Rate Maps (FIRM) for each county of the state. The 100-year floodplain includes meandering, braided (i.e., multiple channel braids), and avulsion channels, as well as side channels that transport water from one part of a mainstream channel to another. Avulsion channels are portions of mainstream and side channels that have been abandoned temporarily by lateral displacement of the channel network elsewhere on the floodplain but are expected to be reoccupied when the network migrates back across the valley bottom.

The 100-year floodplain, which often encompasses the channel-migration zone, frequently occupies a several-hundred-foot wide section of the valley bottom on low-gradient, alluvial river systems. On higher-gradient streams in moderate to steep terrain,

the 100-year floodplain typically coincides with the active channel margin or extends only a few feet beyond the active (e.g., the high-water mark). The active channel consists of the wetted area and bed or bank surfaces exposed during low flows, as well as portions of the valley bottom nearest the channel that are inundated during typical flood events (i.e. comparable to the two-year recurring flood). Active channel margins commonly are identified in the field by piles of accumulated flood debris, overbank sediment deposits, streamside vegetation altered or damaged by channel flows, bank scour, and the absence of aquatic biota (e.g., algae) normally found in slack-water channels. In the five west-side planning units and the OESF, DNR manages only a few hundred acres on 100-year floodplains of the major river systems. Most floodplain acreage is privately owned or federally managed. FEMA maps indicate that most 100-year floodplains are associated with Type 1 and 2 water. Collectively, Type 1 and 2 waters represent less than 5 percent of stream miles on DNR-managed lands. Hence, the impact to DNR management associated with using the 100-year floodplain as the inner margin of riparian management zones is relatively negligible.

pg. IV.54 - delete bullets (1) through (4) at top of page and add new paragraph:

If Type 4 and 5 waters without fish become fishbearing upon removal of obstructions, they will be reviewed for proper typing. Type 4 or 5 waters documented to contain fish that are proposed or candidates for federal listing or federal species of concern will be treated as Type 3 waters, if appropriate.

pg. IV.54 - change second paragraph:

All Type 5 waters that flow through an area with a high risk of mass wasting shall be protected as described in the subsection below... In addition, during this interim 10-year period, a research program shall be initiated to study the effects of forest management along Type 5 waters ~~on aquatic resources~~ located on stable slopes. At the end of the 10 years, a long-term conservation strategy for forest management along Type 5 waters shall be developed and incorporated into this HCP as part of the adaptive management component of this HCP.

pg. IV.54 - insert new paragraph prior to heading "Wind Buffers":

Type 5 waters classified after January 1, 1992 are assumed to be correctly classified. Type 5 waters classified prior to January 1, 1992, will either have their classification verified in the field or be assumed to be Type 3 waters.

pg. IV.54 - change subparagraph (1) at bottom of page:

(1) No timber harvest shall occur within the first 25 feet (~~slope~~ horizontal distance) from the outer margin of the 100 year floodplain.

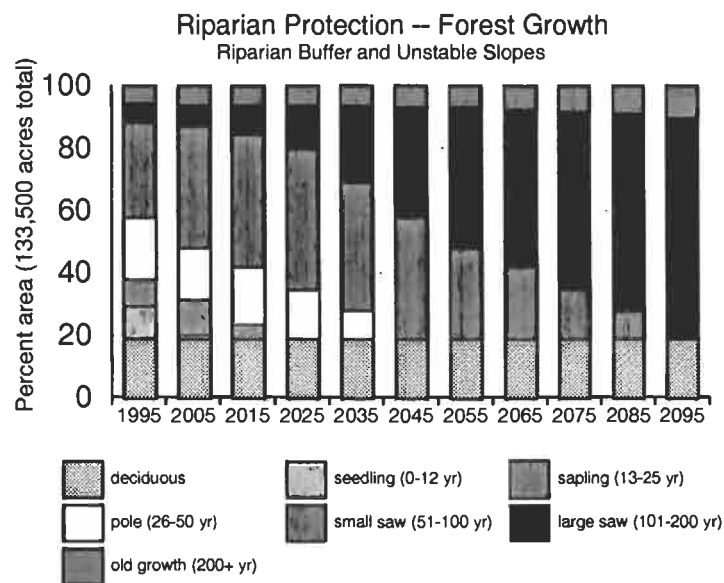
pg. IV.55 - change subparagraph (2) at top of page:

(2) The next 75 feet of the riparian buffer shall be a "minimal-harvest" area. Activities occurring between 25 and 100 feet (~~slope~~ horizontal distance) from the ~~active channel~~ 100 year floodplain must not appreciably reduce stream shading, the ability of the buffer to intercept sediment, or the capacity of the buffer to contribute detrital nutrients and large woody debris...

pg. IV.55 and 56 - delete last three paragraphs on pg. IV.55 and the first paragraph on pg. IV.56, and replace with:

To accommodate the greater flexibility afforded by managing riparian areas on a site-specific basis and the uncertainties surrounding the results of these activities conducted over time, an adaptive-management process will be used to specify management activities within riparian-management areas. Mechanisms used to achieve conservation objectives will vary as new information becomes available.

DNR believes that this strategy will lead, over time, to an age-class distribution within the riparian zones as depicted by the following graph:



Methods for making site-specific, forest-management decisions in the riparian mangement zones and wind buffers will be described in DNR's implementation guidelines. These guidelines will be developed by DNR and provided to the Services for their review prior to being implemented. These guidelines will, at a minimum:

- a. Describe in detail the conservation objectives.
These objectives will include desired outcomes for such items as maintaining bank stability, water temperature, shade, and natural sedimentation rates; retention of large trees and snags necessary to support viable populations of riparian wildlife and recruit future snags, coarse woody debris (downed logs on land), and large woody debris (in-stream logs); and maintaining the natural capacity of these areas to provide

diversity including overstory composition, understory composition, detritus inputs, and natural pool frequencies.

- b. Define terminology, activities, and prescriptions.
For example, single-tree removal may be defined in terms of distance between removed trees and years between entries and may vary by site. It is expected that additional considerations such as lean of the tree, distance from stream bank, size, soundness, and abundance of other mature conifer would be factors considered during a site-specific analysis. The implementation procedures will provide guidance on how to incorporate those types of considerations. Similarly, the implementation procedures may describe how considerations of the rooting zone may extend the 25-foot no-harvest area on a site-specific basis using canopy diameters or other such indicators. Terms such as restoration, single-tree removal, minimal harvest, low harvest, etc. would be defined for each component of the riparian management zones and wind buffers. Prescriptions for placement of yarding corridors and other such activities would also be included.
- c. Detail the monitoring methods to be used in the feedback process for adaptive management designed to ensure the riparian-management zones and wind buffers are adequately providing the desired characteristics (e.g., LWD, stream stability, water temperature, snag densities, etc.); and
- d. Describe the training to be provided to agency staff.

These procedures will be developed by DNR and presented to the Services within 12 months of the signing of the HCP documents. If the Services do not agree with the procedures developed by DNR, a multi-agency science team will be convened to review the sufficiency of the procedures. Timber harvesting conducted within the riparian management zones and wind buffers prior to agreement on the proposed agency procedures will be subject to the following limitations:

- a. Within the 25-foot “no harvest” zone, only commonly accepted restoration activities may occur; and,
- b. Within the “minimal harvest zone,” “low harvest zone,” and “wind buffer,” partial harvests may occur that remove no more than 10% of the conifer volume and/or 20% of the hardwood volume per rotation.

However, if 3 months have passed since the Services have received procedures developed by DNR and the agencies have been unable to reach agreement on their sufficiency, DNR may increase timber harvest within the riparian management zones and wind buffers with the following limits:

- a. Within the 25-foot “no harvest” zone, only commonly accepted restoration activities may occur;

-
- b. Within the "minimal harvest zone," single tree or partial harvests may occur that remove up to 10% of the volume;
 - c. Within the "low harvest zone," partial harvests may occur that remove up to 25% of the volume; and,
 - d. Within the "wind buffer," partial harvests may occur that remove up to 50% of the volume.

pg. IV. 56 - change the second paragraph:

~~No harvest shall occur on hillslopes with a high risk of mass wasting.~~ Unstable hillslopes will be identified through field reconnaissance or identified with slope geomorphology models (e.g., Shaw and Johnson 1995) and verified through field reconnaissance with qualified staff... A method for delineating on a site-specific basis the portions of hillslopes with a high risk of mass wasting will be described in agency procedures to be developed for this HCP. Where slope stability models are less accurate (i.e., Southwest Washington), DNR will also rely on additional information, such as soil types databases.

pg. IV.56 - change the second bullet:

- I a site-specific assessment of alternatives to new road construction (e.g., yarding systems) and the use of such alternatives where ~~they are economically reasonable~~ practicable and consistent with conservation objectives;

pg. IV.56 - add the following to the end of the section on "Road Network Management":

Background

Impacts from roads have been indicated as important potential influences on many species of wildlife and fish and their habitats. For example, elk use closed roads as travel corridors (Ward 1976). Also, both elk and deer use of habitat increases with increasing distance from open roads (Lyon and Jensen 1980; Lyon 1979; Perry and Overly 1977).

Grizzly bears generally avoid roads and associated human disturbance, and the Grizzly Bear Recovery Plan recognizes road management as the single most important tool to manage and maintain suitable grizzly habitat (USDI 1993).

Wolf dens and rendezvous sites are often characterized by distance from human activity, and the Rocky Mountain Wolf Recovery Plan states, "Habitat for wolves is an adequate supply of vulnerable prey (ideally in an area with minimal opportunity for exploitation of wolves by humans)" (USDI 1987).

The WDFW Draft Bull Trout/Dolly Varden Management and Recovery Plan (1992) recommends closing roads permitting public access to spawning areas or access that facilitates poaching. Additional riparian impacts include increased sedimentation from road runoff and increased rates of slope failure caused by improperly constructed or poorly maintained roads (Murphy 1995.).

The effects that roads have on the environment are influenced by what happens during the six distinct phases of road development: planning, design, construction, use, maintenance, and abandonment.

The planning phase determines road location across a landscape and has the single most significant impact on road density and road net configuration. In general, road spacing is determined by an economic balance between environmentally sound road transportation costs and environmentally sound yarding costs. At the site level, road spacing is controlled by topography that controls landing locations which are ultimately connected by a road network. Unstable slopes, wetlands, sensitive habitat, and other environmental issues are best addressed at this early stage as the location of a road will likely change very little once the control points are established.

The design phase ensures that a road will be built from one control point to another with sufficient width, usable grades, proper alignment, use of non-erosive surfacing material, adequate water drainage features, and stable cut-and-fill slopes.

Compliance with construction standards ensures that the road is built to the design specifications and ensures that the construction techniques minimize the amount of sediment moving from the road prism. If not carefully controlled, the construction phase can represent a significant percentage of the life cycle contribution of road sediment.

Forest roads are designed to handle designed traffic at some level of normal operations (road use). Roads are not typically designed to handle excessive loads or high volume traffic during very wet weather or during the thawing cycle associated with cold weather. Uncontrolled traffic can generate the largest percentage of the life cycle contribution of road sediment.

Maintenance operations attempt to keep the road at the designed level of performance. Maintenance primarily deals with keeping drainage structures functional and keeping the running surface usable. Maintenance cannot solve problems associated with a bad location, improper design, poor construction, or misuse.

Abandonment is an alternative to maintenance when the cost of maintaining any road segment is greater than the benefits of keeping the road open and environmentally sound.

DNR's Current Road Management Strategy

Current direction for the DNR's road construction and maintenance program comes from Forest Practices regulations (Chapter 222-24 WAC) and the 1992 Forest Resource Plan.

The objectives of DNR's current road management program are to:

1. minimize further road related degradation of riparian, aquatic, and identified species habitat,
2. plan, design, construct, use, and maintain a road system that serves DNR's management needs, and
3. remove unnecessary road segments from the road net.

Planning. In general, DNR plans for high lead (800 foot optimum average yarding distance) yarding systems on land with slopes above 40 percent, and ground based systems (1000 foot average yarding distance) below that. This together with topography results in typical road densities between 0.5 to 6.0 miles per square mile.

Design. DNR's design specifications meet or exceed Forest Practices regulations and hydraulic code requirements. Current road design standards call for 100-year flood design levels for water crossing structures, abutments of bridges to be outside the ordinary high water mark of streams, 18 inch minimum cross drain culverts, 12 foot running surfaces with 12 percent adverse and 18 percent favorable grades, and 60 foot minimum curve radius. Backslopes are designed according to soil type and meet or exceed the recommended angles required by Forest Practices regulations. Most Regions require that all roads on land with slopes greater than 40 percent be full bench construction with endhaul of excavated material when slopes exceed 55 percent or when within 100 feet of Type 1, 2 or 3 waters and wetlands. DNR also has minimum requirements for rock hardness and soluble degradation to reduce the amount of surface erosion generated from traffic.

Construction. DNR's road construction specifications meet or exceed the Forest Practices minimums. DNR requires compaction of fills in 2-foot layers, prohibits any woody debris from being incorporated into the fills, and often requires that the subgrade surface be compacted and graded prior to surface application. DNR prohibits construction during inclement weather and generally restricts construction to the dryer summer months.

Road Use. DNR currently allows all-season use of roads except for log truck traffic which may be restricted during periods of freeze-thaw cycles. DNR occasionally closes roads in agreement with the Washington Department of Fish and Wildlife for the purpose of game management. DNR also has occasional road closures related to fire control.

Maintenance. DNR road maintenance specifications meet or exceed the Forest Practices minimums. Road maintenance activities focus on four main activities: Timber sales, forest management, fire control access, and recreation. All roads are maintained to meet Forest Practices environmental and forest road safety standards. Each type of road has a different driveability standard that is linked to the type of vehicle used for each activity.

Abandonment. When a road segment is determined to be too expensive to maintain, or is no longer needed, it is stabilized and abandoned. DNR is currently building more road per year than it is abandoning. While the number of miles of road per section is getting lower, the need to keep roads open longer coupled with the need to access additional acreage means the road network keeps growing. The need to keep roads open longer is driven by new environmentally sensitive approaches to harvesting, such as partial cutting and staggered settings. These silvicultural techniques dictate the need for multiple entries into a stand over the long term.

DNR's HCP Road Management Strategy

In 1994, an analysis of the transportation information contained in the DNR GIS system showed that the average density of roads in the 9 HCP planning units ranged from 1.69 to 3.29 miles per square mile although road density varies greatly within each planning unit.

The options available to the DNR to reduce the mass wasting and surface erosion impacts to streams primarily focus on the amount and location of problem roads that are currently unnecessary and on how well necessary roads are managed. Road management can best be addressed with improved design, construction compliance, control of use, and maintenance management. Potential problems can be best addressed during a landscape level planning phase.

DNR will initially focus on improvements in the more sensitive areas of a landscape with priority given to locations on steep slopes with unstable soils and high precipitation, and locations within 100 feet of Type 1, 2, and 3 waters and wetlands.

Planning. DNR will ensure that planning processes specifically include the consideration of longer yarding capacity systems whenever faced with placing roads in unstable areas. The alternatives generated during the planning process will be reviewed by an interdisciplinary team of foresters, scientists, and engineers who will evaluate the environmental, silvicultural, public use, and economic benefits and costs of these alternatives and recommend harvest strategies for these sensitive areas. Alternate locations for new roads will be considered in more sensitive areas where other slope-parallel roads exist. The selection process will emphasize the overall goals of the HCP.

In considering road densities, it is assumed that the current emphasis on small staggered settings with greenup requirements, and partial cut silvicultural systems designed to achieve environmental objectives will continue. These systems will, by their nature, result in more extensive road systems which will be active for longer periods of time. While expansion is inevitable as new areas are accessed, DNR's goal will be to reduce the additional amount of new roads needed through careful planning and control the overall size of the network by effective abandonment.

Design.

1. In unstable areas DNR will consider options such as:
 - a. road designs by professional engineers,
 - b. narrower running surfaces,
 - c. less steep cut and fill slopes,
 - d. more comprehensive slope revegetation/stabilization systems,
 - e. designed slope retaining structures,
 - f. larger and more frequent cross drains,
 - g. full bench on all roads located on 40 percent or greater side slopes,
 - h. endhaul of waste on all sideslopes greater than 55 percent,
 - i. subgrade and surfacing matrix enhancers (fabric, lime, concrete),
 - j. outsloping where appropriate,
 - k. permeable fills to stabilize sub-grades, and

1. other techniques for road-benching, including sliver-fills, back casting, and multi-benching.
2. When within 100 feet of Type 1, 2, or 3 waters or wetlands DNR will consider options such as:
 - a. higher quality rock surfacing specifications or the use of surfacing binders such as asphalt or lining sulfonate,
 - b. more comprehensive cut and fill slope revegetation/stabilization systems,
 - c. design of culverts and bridges for debris capacity as well as 100-year flood hydraulic criteria, and
 - d. placing sediment traps to avoid delivery of surface erosion into stream crossings, particularly at sites of through-cuts.

Construction.

1. In unstable areas DNR will consider options such as:
 - a. slope stake design and compliance on road construction on 55 percent sideslopes,
 - b. thorough compaction of subgrade,
 - c. prohibition of woody debris from all fills,
 - d. compact fills on slopes between 40 percent and 55 percent in 6 inch lifts with compacting machines designed for that purpose,
 - e. control of road construction shutdowns using moisture content indicators,
 - f. controlled blasting, (e.g., pre-splitting) in order to avoid triggering landslides, especially during wet conditions, and
 - g. employing a backhoe rather than dozer to reduce ground-disturbance.
2. When within 100 feet of Type 1, 2, or 3 waters or wetlands DNR will consider options such as:
 - a. thorough compaction of subgrade,
 - b. filter barriers downslope of construction,
 - c. full diversion of flowing waters during culvert installation,
 - d. silt filter devices at outlets of cross drains,
 - e. shut down of construction during inclement weather, and
 - f. limiting the extent of exposed soils adjacent to a watercourse.
3. Reconstruction of necessary roads on unstable soils will be given high priority.

Road Use.

1. In unstable areas DNR will consider options such as closing roads to log truck traffic during high rainfalls.
2. When within 100 feet of Type 1, 2, or 3 waters or wetlands DNR will consider options such as:
 - a. closing roads to log truck traffic during high rainfalls,
 - b. placing limits on volume hauled per day on marginal road segments,
 - c. restricting hauling on some road systems to low pressure tire hauling vehicles (Central Tire Inflation),

-
- d. closing temporarily inactive road segments with gates, and
 - e. silt filter devices at outlets of cross drains.

Maintenance.

- 1. In unstable areas DNR will consider options such as:
 - a. road stabilization techniques that reduce the size of the road prism,
 - b. stabilizing and armoring cut and fill slopes, and
 - c. more frequent ditch and drainage structure maintenance,
- 2. When within 100 feet of Type 1, 2, or 3 waters or wetlands DNR will consider options such as:
 - a. paving or lignin sulfonate surfacing stabilizers,
 - b. more frequent ditch and surface maintenance, and
 - c. resurfacing projects.

Abandonment. The DNR will become more aggressive in abandoning unneeded unstable roads and will increase the level of integrating abandonment of short use spurs in conjunction with timber sale activities.

pg. IV.57 - add to the end of the third bullet:

(e.g., because land is in mines, farms, or housing developments). In such situations an interdisciplinary team of scientists will be convened to develop a prescription for DNR-managed land within the drainage basin and economic considerations will be included in their deliberations.

pg. IV.58 - change the end of the second paragraph:

Wetlands...In the field, the width of the wetlands buffer shall be measured as the slope horizontal distance from, and perpendicular to, the edge of the wetland. ~~For purposes of mapping and accounting, the width of the riparian buffer will be reported as horizontal distances.~~ Seeps and wetlands smaller than 0.25 acre will be afforded the same protection as Type 5 waters. That is, such features will be protected where part of an unstable hillslope. Research to study the effects on aquatic resources of forest management in and around seeps and small wetlands will be included in research program for Type 5 waters.

pg. IV.58 - change the last paragraph:

Forestry operations in wetlands and wetland buffers shall be in accordance with DNR's policy of no overall net loss of wetland function. Forest management in forested wetlands and in buffers of nonforested wetlands will minimize entries into these areas and utilize practices that minimize disturbance, such as directional felling of timber away from wetlands and equipment that cause minimal soil disturbance (e.g., tractors with low pressure tires). If ground disturbance caused by forest management activities alters the natural surface or subsurface drainage of a wetland, then restoration of the natural drainage shall be required...

Rationale for the Conservation Components
Effects of the Riparian Conservation Strategy on Salmonid Habitat

No change
No change

E. Olympic Experimental State Forest Planning Unit

Integrated Approach to Production and Conservation

pg. IV.70 - delete subparagraph (4) and replace with:

(4) To learn to integrate older forest ecosystem values and their functions with commercial forest activities using, as a working hypothesis, that landscapes managed for a fairly even apportionment of forest cover among stands in all stages of development, from stand initiation to old growth (Oliver and Larson 1990) will support desirable levels of both commodities and ecosystem functions.

Conservation Strategy for the Northern Spotted Owl in the Olympic Experimental State Forest

pg. IV.77 - change the fourth paragraph:

...See Table IV.5. It is likely that the best estimates of potential habitat are intermediate between those based on stands more than 50 and 70 years old. These estimates of the abundance of potential habitat based on stand age are not perfect. For example, some stands not much older than 100 years would be classified as sub-mature habitat based on their structure and composition, just as some 75 year-old stands with a substantial component of older trees would be classified as old-forest habitat. But it is likely that estimates of the abundance of old-forest habitat are relatively unbiased, that is, some stands estimated to be old-forest habitat are really sub-mature and some stands estimated to be sub-mature are really old-forest. Similarly, estimates of the abundance of sub-mature habitat are likely to be relatively unbiased. However, the abundance of young-forest marginal habitat is likely overestimated based on the abundance of stands currently over 50 years old. The structure and composition of some of these stands are such that they would offer too few opportunities for foraging and roosting to be classified as young-forest marginal habitat. It is likely that the current abundance of young-forest marginal habitat is some proportion of the abundance of forest stands between 51 and 70 years of age and that proportion varies among landscape planning units with stand-level and landscape-level features that are unique within landscapes. Currently, potential spotted owl habitat⁶ probably does not constitute much more than 40 percent of any landscape planning unit, although old-forest habitat appears to be at or above the 20 percent threshold in five several landscape planning units (Table IV.5).

⁶In discussions regarding northern spotted owls and the OESF, the term "potential spotted owl habitat" is used to generally characterize forest stands that, because of their structure and composition, are similar to those described as young- or old-growth forest spotted owl habitat by Hanson et al. (1993). The adjective "potential" is used to acknowledge that not all such stands will actually be used (become habitat) by owls, for a variety of reasons including that they occur in landscapes dominated by clearcuts and young plantations and are thus incapable of supporting owls. (Note: All footnote numbers in this chapter would increase by one.)

pg. IV.85 - change the footnotes to Table IV.6:

²Non-habitat is ~~estimated as~~ assumed to be either a) untreated stands 50 years old or younger, or b) stands ~~older than 70~~ that were 71 years old or older ~~that were treated with~~

a partial harvest not more than 10 years previously when they were partially-harvested within the past 10 years.

³Young-forest marginal habitat is estimated as ~~stands 50-70~~ to be either a) untreated stands 51-70 years old, or b) stands ~~older than 70 years that were treated with a partial harvest 11-30 years previously~~ that were 71 years old or older when they were partially-harvested within the past 11-30 years.

⁴Sub-mature habitat is estimated as ~~stands 71-100~~ to be either a) untreated stands 71-100 years old, or b) stands ~~older than 70 years that were treated with a partial harvest 31-50 years previously~~ that were 71 years old or older when they were partially-harvested within the past 31-50 years.

⁵Old-forest habitat is estimated as ~~stands 101~~ to be either a) untreated stands 101 years old or older, or b) stands ~~older than 70 years that were treated with a partial harvest 51 or more years previously~~ that were 71 years old or older when they were partially-harvested over 51 years ago.

pg. IV.86 - change last paragraph:

(4) Harvests of available young- and old-forest habitat will be evenly distributed over the duration of the restoration phase, i.e., ~~over the first 40 to 60 years of the HCP~~. Available habitat will be calculated for each landscape planning unit, and harvests of that habitat will be scheduled and conducted so that they are evenly distributed by decade over the duration of the restoration phase of the HCP.

pg. IV.87 - insert new first paragraph:

(5) Harvests of available young- and old-forest habitat will be scheduled in consideration of the value of individual owl sites to conservation, research, and validation monitoring in the OESF. DNR will consider the recommendations of USFWS when scheduling these harvests during the first decade of the HCP.

pg. IV.87 - renumber first subparagraph on page (5) to (6):

Riparian Conservation Strategy for the Olympic Experimental State Forest

pg. IV.97 and 98 - delete the entire last paragraph on pg. 97 and the text on pg. 98 through the end of the paragraph beginning with "Active channel margins..." and replace with:

Average buffer widths are given in Table IV.7. as average horizontal distances measured outward from the outer margin of the 100-year floodplain on either side of the stream. The 100-year floodplain is the valley-bottom area adjoining the stream channel that is constructed by the stream under the present climatic regime and overflowed at times of very high discharge (i.e., flooding associated with storms of a 100-year recurrence interval; Dunne, T., and L.B. Leopold. 1987), One-hundred-year floodplains commonly are delineated by the Federal Emergency Management Agency (FEMA) on Flood Insurance Rate Maps (FIRM) for each county of the state. The 100-year floodplain

includes meandering, braided (i.e., multiple channel braids), and avulsion channels, as well as side channels that transport water from one part of a mainstream channel to another. Avulsion channels are portions of mainstream and side channels that have been abandoned temporarily by lateral displacement of the channel network elsewhere on the floodplain but are expected to be reoccupied when the network migrates back across the valley bottom.

The 100-year floodplain, which often encompasses the channel-migration zone, frequently occupies a several-hundred-foot wide section of the valley bottom on low-gradient, alluvial river systems. On higher-gradient streams in moderate to steep terrain, the 100-year floodplain typically coincides with the active channel margin or extends only a few feet beyond the active (e.g., the high-water mark). The active channel consists of the wetted area and bed or bank surfaces exposed during low flows, as well as portions of the valley bottom nearest the channel that are inundated during typical flood events (i.e. comparable to the two-year recurring flood). Active channel margins commonly are identified in the field by piles of accumulated flood debris, overbank sediment deposits, streamside vegetation altered or damaged by channel flows, bank scour, and the absence of aquatic biota (e.g., alea) normally found in slack-water channels. In the five west-side planning units and the OESF, DNR manages only a few hundred acres on 100-year floodplains of the major river systems. Most floodplain acreage is privately owned or federally managed. FEMA maps indicate that most 100-year floodplains are associated with Type 1 and 2 water. Collectively, Type 1 and 2 waters represent less than 5 percent of stream miles on DNR-managed lands. Hence, the impact to DNR management associated with using the 100-year floodplain as the inner margin of riparian management zones is relatively negligible.

pg. IV.99 - change the last paragraph on the page:

There are no available quantitative models or databases that specify which Type channels require buffer protection...In addition, streams listed as Type 9 (unclassified) or streams not in DNR's hydrology databases will be treated similarly. Type 4 or 5 streams documented to contain fish that are proposed or candidates for federal listing will be treated as Type 3 waters. Type 5 channels with a potential for delivering water, wood, sediment, nutrients, and energy to the channel network will be protected from the active channel margin outward to the topographic break in slope on either side of the channel, as well as upstream to the channel initiation point and downstream to the channel confluence. (See Figure IV.9).

pg. IV.99, and 104 - change the last paragraph on pg. 99 (that continues on pg. 104):

Figures IV.10, IV.11, and IV.12 demonstrate the one of several potential scenarios for the adjustment of riparian-buffer widths to meet site conditions. These buffer configurations are based on mass-wasting inventories and field assessments of physical and ecological riparian conditions. Figure IV.10 shows the application of the expected average interior-core and exterior buffer widths to a segment of the Clallam River and its tributaries. Figure IV.11 compares the expected average riparian buffer widths for the same area and buffers designed solely on the basis of mass-wasting inventories. Figure IV.12 shows the one potential example of a buffer configuration that would include mass-wasting sites and

meet riparian conservation objectives for maintaining physical and ecological functions of the riparian system.

pg. IV.103 - change the title of Figure IV.12:

Application of expected average riparian buffer widths adjusted for mass-wasting sites for a segment of the Clallam River and its tributaries: one potential scenario

pg. IV.104 - change the last paragraph:

Widths for the exterior buffers were estimated by qualitatively evaluating historical patterns of windthrow resulting from average winter storms in the OESF (discussed in the Draft EIS that accompanies this HCP) and by reviewing the limited information available from local wind-buffer trials. As a starting hypothesis, the average width of exterior buffers will be 150 feet for Type 1 through 3 streams and 50 feet for Type 4 and 5 streams (Table IV.8), measured in ~~slope~~ horizontal distances laterally from the outer edge of the interior-core buffer on either side of the stream...

pg. IV.105 - change Table IV.8: Proposed average widths of exterior riparian buffers in the Olympic Experimental State Forest:

pg. IV.105 - change bullet (1):

(1) Standard procedure: To achieve the objective of wind-firm riparian forest, wind buffers will be placed on all riparian segments for which stand wind-firmness cannot be documented by historical information, windthrow modeling (e.g., Tang 1995), or other scientific means. Thirty-three percent or less, by volume, of the riparian trees in the designated exterior buffer may be removed for commercial purposes (i.e., excluding pre-commercial thinning and restoration activities) per rotation, until research is available supporting more frequent entry. This percentage corresponds to the lightest intensity partial harvest currently used in the Experimental Forest to produce forest stands that are robust and diverse, both structurally and compositionally...

pg. IV.106 - add bullets (6) through (8) under subheading Comprehensive Road-Maintenance Plans:

- (6) minimize active road density
- (7) prioritize roads for decommissioning, upgrading, and maintaining
- (8) identify fish blockages caused by stream crossings and prioritize their retrofitting or removal

pg. IV.109 - change bullet (top of page) (1):

(1) the monitoring method ~~titled~~ described in Standard Methodology for Conducting Watershed Analysis currently being developed for the state forest Practices Board (WFPB 1994 WFPB 1995b);

pg. IV.110 - change third paragraph:

Although the riparian conservation buffers have been established on the basis of physical arguments, DNR expects that these buffers will contribute to the maintenance and

recovery of ecological habitat complexity in aquatic and riparian systems. This hypothesis derives from the current understanding of the dynamics and processes of these systems. For that reason, research and monitoring can improve scientific knowledge and management practices in the Experimental Forest.

pg. IV.110 - add to end of the last paragraph:

...Estimated site potential tree heights for the Experimental Forest are: for Types 1 and 2 streams, 108 feet for a 50-year growing period, 155 feet for a 100-year period, and 168 feet for a 120-year period; and for Types 3 through 5 streams, 105 feet for a 50-year growing period, 153 feet for a 100-year period, and 165 feet for a 120-year period. Field measurements (McDade et al. 1990) indicate that buffer widths equal to approximately 60 percent of the average tree height will provide 90 percent of the natural level of instream large woody debris. Extrapolating from these results, a buffer width equal to approximately the 100-year site potential tree height, which is more than 60 percent of the 200-year site potential tree height (i.e., 60 percent of an old-growth tree height), should provide more than 90 percent of the natural level of instream large woody debris.

pg. IV.114 - change last paragraph:

Prior to landscape planning in each of the 11 landscape planning units in the Experimental Forest, watershed conditions will be evaluated and monitored through a 12-step watershed assessment procedure (described later). Results from assessments of physical and biological conditions obtained from the regulatory watershed-analysis process (WFPB 1994) will be used where possible, in lieu of those assessments required in the 12-step process. Therefore, following the implementation of the OESF, preliminary assessments and management activities will occur before landscape planning in most landscape planning units.

pg. IV.115 - change second paragraph:

....The agency may wish to sponsor a regulatory watershed analysis in lieu of some or all parts of the 12-step process. Given the watershed concerns in the OESF, however, DNR likely will go beyond the state Forest Practices Board (WFPB 1994) methods in order to account for issues not addressed in the Forest Practices Board Manual...

pg. IV.117 - change bullet (3):

(3) Conduct preliminary assessment of physical and biological watershed conditions. Use results from the regulatory watershed-analysis process, where available. Table IV.11 lists the components of this assessments, some or all of which might be included in the analysis. Methods and guidelines would be established in agency procedures developed for the OESF...

pg. IV.119 - change last sentence:

Management activities in the interior-core buffers, or forested wetland and their buffers, would exclude herbicide release and new road construction in riparian areas unless, in the case of riparian buffers, stream crossings are essential ~~and herbicide release~~. Roads in wetlands or their buffers will require on-site and in-kind...

pg. IV.120 - change first bullet:

- I** partial cuts of 33 percent or less by volume, per rotation, aggregated or dispersed, depending on the operational objectives for maintaining wind-firm stands;

Multispecies Conservation Strategy for Unlisted Species in the Olympic Experimental State Forest

pg. IV.124 - change the fourth paragraph:

The habitats most critical for the conservation of unlisted species on DNR-managed lands in the OESF contain elements of late successional coniferous forest, riparian areas and wetlands, or both...Thus, special conservation measures for talus fields, caves, cliffs, large snags, and large, structurally unique trees may be important to these species..

pg. IV.129 - change sixth paragraph:

Conservation measures for large snags and large, structurally unique trees (described in the discussion of uncommon habitats in Section F of this chapter titled Multispecies Conservation Strategy in the Five West-side Planning Units) will retain ~~habitat for nesting and roosting~~ structural elements required by pileated woodpeckers for nesting and roosting. Additional conservation measures for snags (also described in Section F of this chapter) will increase the density of snags, and consequently, opportunities for foraging.

Consistent with RCW 77.16.120, trees or snags that are known to contain active pileated woodpecker nests will not be harvested. In addition, trees or snags that are known to have been used by pileated woodpeckers for nesting will not be harvested. Green tree and snag retention are subject to the safety standards of the Department of Labor and Industries (WAC 296-54).

F. Multispecies Conservation Strategy for Unlisted Species in the Five West-side Planning Units

Introduction

pg. IV.134 - change first paragraph:

...Therefore, in places where DNR believes that effective conservation can be provided in a more efficient way, DNR through ~~consultation~~ cooperation with ~~the Washington Department of Fish and Wildlife or the U.S. Fish and Wildlife Service~~, may develop a site-specific management plan that provides adequate protection for the species or habitat occurring at that site. When a management plan approved by ~~the Washington Department of Fish and Wildlife or the U.S. Fish and Wildlife Service~~ is in place, the special management prescriptions and/or additional mitigation specified in this HCP shall be waived.

pg. IV.134 - add to the end of the first full paragraph:

If, however, DNR discovers some active nesting, denning, or roosting sites in the course of forest management activities, or through voluntary surveys, or such sites are documented by the Washington Department of Fish and Wildlife on DNR-managed

lands, DNR shall provide the special protection described in the subsection titled Species by Species Conservation. At the time a new species is proposed for listing, and a written request to add that species to the permit is made by DNR, DNR will evaluate and consider additional protection measures such as seasonal restrictions and protection of nesting/denning sites.

Conservation Objectives

pg. IV.134 - change second full paragraph:

Within the five west-side planning units, 63 53 animal species are considered species of concern because information indicates they face some risk of extinction: nine are federally listed, 33 ~~are federal candidates~~, two, including the bull trout, are federal candidates, 22 are federal species of concern, two are listed by the state but have no special federal status, 11 are state candidates with no special federal status, ~~and bull trout~~ and seven species of anadromous salmonids have been or are under review by the federal government for listing.

pg. IV.134 - change last paragraph on IV.134 and first three bullets on pg. IV.135:
DNR had identified three conservation objectives for its multispecies strategy on DNR-managed lands in the five west-side planning units to provide habitat that:

- (1) ~~to provide habitat that~~ helps maintain the geographic distribution of unlisted species that have small annual or breeding-season home range areas ~~(less than approximately 1 square mile)~~;
- (2) ~~to provide habitat that~~ contributes to demographic support of populations of unlisted species with large home ranges ~~(greater than approximately 1 square mile)~~ on federal forest reserves (National Parks, National Forest Wilderness Areas, National Forest Late Successional Reserves, etc.); and
- (3) ~~to provide habitat that~~ can facilitate the dispersal of these wide-ranging species among federal forest reserves.

Conservation Strategy

No change

Benefits of the Species-specific Strategies to Unlisted Species

pg. IV.139 - change the last sentence of the second paragraph:

The conservation strategies for salmonids and marbled murrelets should serve to reduce the risk of extinction for many unlisted species, in particular those that have small home ranges and depend on riparian/wetland ecosystems or late successional forests...The conservation measures for talus fields, caves, cliffs, oak woodlands, large snags, and ~~very large old large~~, structurally unique trees described later in this section are intended to provide habitat for these species.

Protection of Uncommon Habitats

pg. IV.139 - change the first paragraph under this heading:

The conservation strategies for salmonids, spotted owls, and marbled murrelets protect habitat for many unlisted species particularly those associated with late successional forests or riparian ecosystems...These measures specifically address talus, caves, cliffs, oak woodlands, large snags, and ~~very large old~~ large, structurally unique trees. The protection of talus, caves, cliffs, and oak woodlands is important because once altered or destroyed, these habitats are difficult to restore or recreate. ~~Very large old trees~~ Large snags and large, structurally unique trees are essential habitat elements that are generally scarce in managed forests.

pg. IV.140 - change the fourth paragraph:

The conservation objectives for the talus habitat are to maintain its physical integrity and minimize microclimatic change. To meet these objectives, avoid conflict with the conservation of salmonid habitat, and promote cost effective forest management, naturally occurring talus fields ~~that are 1 acre or larger~~ shall be protected as follows:

pg. IV.140 and 141 - delete all four bullets at the bottom of page 140 and the first bullet on page 141 and replace with:

Nonforested Talus - defined as exposed talus with 30 percent or less canopy closure

- No timber harvest will occur in talus fields greater than or equal to 1 acre.
- No timber harvest will occur in talus fields greater than 1/4 acre in spotted owl NRF and dispersal habitat management areas in the Columbia Planning Unit, except for the western half of the Siouxon and 2 isolated sections near Highway 12 where no timber harvest will occur in talus fields greater than 1 acre.
- A 100 ft wide timber buffer will be applied around talus fields identified above. The buffer will be measured from the edge of the nonforested talus field, i.e. where canopy closure first exceeds 30 percent.
- Timber harvest in the buffer must retain at least 60 percent canopy closure. Any yarding within the buffer will protect the integrity of the talus field.

Forested Talus - defined as exposed talus with greater than 30 percent canopy closure

- Timber harvest may remove not more than 1/3 of standing timber volume each harvest rotation from forested talus not located in talus buffers.

Nonforested and Forested Talus

- Road construction through talus fields and buffers will be avoided, provided that the routing of roads will be accomplished in a practicable and

economically feasible manner, that is consistent with other objectives of a comprehensive landscaped-based road network planning process.

- The mining of rock from talus fields and buffers for road construction will be avoided, provided construction materials can be acquired in a practicable manner, consistent with other objectives of a comprehensive road network planning process.

If a functional relationship between relative density and canopy closure can be demonstrated, then relative density can be substituted for canopy closure in the above definitions of talus.

pg. IV.141 - change the third paragraph under CAVES:

The Washington Department of Fish and Wildlife definition of a cave is extraordinarily broad, and it is unlikely that all geomorphological features that fit this definition are important to wildlife. Under this HCP, when a cave is found, DNR shall determine, in consultation cooperation with the Washington Department of Fish and Wildlife or the U.S. Fish and Wildlife Service, whether it is important to wildlife habitat, and only those caves identified as important habitat shall be protected. The conservation objectives for such caves are to:

pg. IV.141 - change subparagraph (3):

(3) minimize human disturbance to bat hibernacula, and maternity colonies.

pg. IV.142 - change the first bullet on page:

- Roads shall not be constructed within 0.25 mile of a cave entrance, provided that the routing of roads around caves can be accomplished in a practicable and economically reasonable manner, consistent with other objectives of a comprehensive landscape-based road network planning process.

pg. IV.142 - change the second bullet on page:

- Where surface activities may disturb a cave passage, roads shall not be constructed within 300 feet of the cave passage, provided that the routing of roads around caves can be accomplished in a practicable and economically reasonable manner, consistent with other objectives of a comprehensive landscape-based road network planning process.

pg. IV.142 - change the fourth bullet:

- The location of caves will be kept confidential by DNR, the U.S. Fish and Wildlife Service, and the Washington Department of Fish and Wildlife to the extent permitted by law.

pg. IV.142 - change the third paragraph under CLIFFS:

The conservation objectives for cliff habitat are to minimize disturbance to geomorphic features and to protect species that inhabit cliffs. However, few management practices have been specifically developed for cliffs in managed forests. Therefore, management

prescriptions to meet these objectives shall be developed on a site-specific basis with consideration given to the following:

- During planning for harvest activities around cliffs greater than 25 tall and below 5,000 feet in elevation, DNR shall evaluate the cliff to determine if use by wildlife is likely (for example, are fissures/overhangs suitable for bats present, are ledges/perch trees suitable for nesting raptors present, etc.) and, if so, provide adequate protection measures including, but not limited to:
 - a. protection of integrity of cliffs judged suitable and likely for wildlife use (for example, during felling/yarding, logs should not be allowed to disturb cliff face),
 - b. retention of trees on cliff benches and along the base and top of cliffs judged suitable for nesting raptors, especially perch trees along the top of cliffs,
 - c. avoidance of damage to significant cavities, fissures, and ledges
- All cliffs in excess of 150 feet in height will be evaluated for peregrine falcon use as described elsewhere in this HCP (see Minimization and Mitigation for Other Federally Listed Species in All Planning Units)
- All cliffs with known peregrine falcon aeries will be protected according to Forest Practice regulations and the commitments contained in this HCP for peregrines (see Minimization and Mitigation for Other Federally Listed Species in All Planning Units).

pg. IV.142 - change the last paragraph under the heading Cliffs:

The mining of rock from cliffs for road construction shall be avoided, provided construction materials can be acquired in a practicable and economically reasonable manner, and is consistent with other objectives of a comprehensive landscape-based road-network planning process.

pg. IV.143 - change first paragraph:

...In the area covered by the HCP, DNR manages about 4,000 acres of oak woodland (i.e., where oak is the primary tree species) and an additional 7,000 acres of mostly ponderosa pine stands in which oak is a significant associate (~~DNR GIS 1995~~) (i.e., where oak is a secondary or tertiary tree species), but only about 500 acres of oak woodland are in the five west-side planning units (DNR GIS 1995).

pg. IV.143 - change the first bullet in the fifth paragraph:

Oak woodlands shall be managed as follows:

- Partial harvest may occur in oak woodlands. Such harvest will:
 - retain all very large dominant oaks (greater than 20 inches dbh);
 - maintain 25 to 50 percent canopy cover, ~~which include shrubs;~~
 - remove encroaching conifers, except western white pine; and

-
- | retain standing dead and dying oak trees.

pg. IV.143 - change the third bullet in the fifth paragraph:

- | Road construction through oak woodlands shall be avoided, provided that the routing of roads around oak woodlands can be accomplished in a practicable and economically reasonable manner, consistent with other objectives of a comprehensive landscape-based road network planning process.

pg. IV.144 - change the first four bullets in the fourth paragraph:

DNR shall conserve the habitat elements provided by large, structurally unique trees as follows:

- ~~| At least two live trees shall be retained for each acre harvested.~~
- | When selecting trees for retention, a preference shall be shown for large trees with structural characteristics important to wildlife, or those considered to be old-growth remnants.
- | At least ~~half of the trees~~ 1 tree per acre selected for retention shall belong to the largest diameter size classes class of living trees in the harvest management unit before harvest (by 2-inch increments). At least 1 other tree per acre shall belong to the dominant crown class.
- | The trees selected for retention will be left in the harvest unit where practicable, and may be clumped to improve wildlife habitat, protect trees from severe weather, or facilitate operational efficiency, but where practicable, the density of clumps may not be less than 1 clump per 5 acres.

pg. IV.144 - add new heading and paragraph at bottom of page:

SNAGS

DNR shall conserve the habitat elements provided by large snags as follows:

- | At least three snags shall be retained for each acre harvested, on average. DNR will try to leave all snags where safe and practical.
- | If available, snags retained will be at least 15 inches dbh and 30 ft tall. DNR will try to leave all snags where safe and practical.
- | Priority for retention will be given to large hollow snags, hard snags with bark, and snags that are at least 20 inches dbh and 40 feet tall.

-
- At least five live trees shall be retained permanently for each acre harvested, on average. Two of these trees will be as described in the section on large, structurally unique trees. The other three trees per acre will belong to the dominant, codominant, or intermediate crown classes, and, when available, will have at least one-third of their height in live crown.
 - Priority for retention will be given to tree species which have a propensity to develop cavities (e.g., maple), but the stand tree species diversity after harvest should be generally representative of the tree species diversity prior to harvest.
 - If fewer than three snags per acre are available prior to harvest, or if fewer than three snags can be left because of safety concerns, additional live trees will be retained so that the total number of stems per acre retained after harvest is, on average, at least 8 per acre. If additional live trees belong to the co-dominant or intermediate crown classes, and when available, will have at least one-third of their height in live crown. If intermediate crown-class trees are retained, shade-tolerant species with at least 1/3 of height in live crown will be selected.
 - Snags and trees selected for retention within the harvest units may be clumped to improve wildlife habitat, protect trees from severe weather, or facilitate operational efficiency, but where practicable, the density of clumps may not be less than one clump per five acres.
 - Snags and trees selected for retention will pose no hazard to workers during harvest operations per safety standards of the Washington Department of Labor and Industries (WAC 296-54 WAC).

pg. IV.144 - and second new heading and paragraph at bottom of page:

BALDS

Road construction through balds shall be avoided, provided that the routing of roads around balds can be accomplished in a practicable manner and is consistent with other objectives of a comprehensive landscape-based road network planning process.

pg. IV.144 - add third new heading and paragraph at bottom of page:

MINERAL SPRINGS

Mineral springs provide important resources for certain animal species, e.g., the band-tailed pigeon (*Columbia fasciata*). To prevent or reduce adverse impacts to this landscape feature and the wildlife species associated with it, DNR will cooperate with the U.S. Fish and Wildlife Service in planning management activities within 200 feet of known mineral springs. Such activities will be designed to (1) retain adequate trees for perching, and (2) maintain berry, fruit, and mast producing shrubs and trees, particularly in openings near mineral springs. Trees harvested near mineral springs will be felled away from the spring. DNR will avoid crossing mineral springs with yarding equipment

and will prohibit the crossing of mineral springs by ground-based logging equipment. Residual large green trees and snags within 25 ft of mineral springs will be left, and either clumped or scattered depending upon operational feasibility. In addition, DNR will continue to minimize the use of herbicides as directed by Forest Resource Plan Policy No. 33.

| | |
|---|-----------|
| Species by Species Conservation for Unlisted Species of Concern | No change |
| Mollusks | No change |
| Arthropods | No change |

Fish

pg. IV.146 - change the bullets (2) and (3) and add a fourth to the first paragraph:
(2) protecting lakes and ponds classifies as Types 1, 2, and 3 waters; and

(3) protecting Types 1, 2, 3, and 4 rivers and streams; and

(4) treating Type 4 and 5 waters documented to contain fish that are proposed candidates for federal listing as Type 3 waters, if appropriate.

| | |
|------------|-----------|
| Amphibians | No change |
| Reptiles | No change |

Birds

pg. IV.151 - change fifth paragraph:
Large, structurally unique trees and large hollow snags will be protected as described previously in the subsection titled Protection of Uncommon Habitats...

pg. IV.152 - insert between forth and fifth paragraphs:
Conservation measures for large snags and large, structurally unique trees will retain structural elements required by pileated woodpeckers for nesting and roosting. Additional conservation measures for snags will increase the density of snags, and consequently, opportunities for foraging.

pg. IV.152 - change fifth paragraph:

In addition, Consistent with RCW 77.16.120, trees or snags that are known to contain active pileated woodpecker nests will not be harvested. In addition, trees or snags that are known to have been used by pileated woodpeckers for nesting will not be harvested. Green tree and snag retention are subject to the safety standards of the Department of Labor and Industries (WAC 296-54).

pg. IV.153 - delete the first paragraph entirely and replace with:

Conservation measures for large snags and large, structurally unique trees will retain structural elements required by purple martins for nesting.

pg. IV.153 - change the third paragraph:

Even-aged forest management throughout the five west-side planning units will continue to provide openings suitable for breeding, foraging, and resting habitat. ~~Snags will be retained according to state Forest Practices Rules. Under WAC 222-30-020 (11), three wildlife reserve trees (typically snags) are left for each acre harvested in western Washington. The wildlife reserve trees must be 10 or more feet in height and 12 or more inches dbh. These minimum sizes do not guarantee that wildlife trees suitable for western bluebirds will be retained. The retention of large, structurally unique trees, as described previously in the subsection titled Protection of Uncommon Habitats, will provide a source for large snags. Conservation measures for large snags and large, structurally unique trees will retain structural elements required by western bluebirds for nesting.)~~

Mammals

pg. IV.153 - change the last sentence on page:

Talus fields, cliffs, and caves will be protected as described previously in the subsection titled Protection of Uncommon Habitats, and DNR will also protect large, structurally unique trees and large snags as described in the same subsection.

pg. IV.155 - insert a new paragraph before Additional Mitigation:

Conservation measures for large snags and large, structurally unique trees will retain structural elements required by fishers for denning and resting.

pg. IV.155 and 156 - delete the last paragraph on page 155 and the first paragraph on 156 and replace with:

In addition, under WAC 222-16-080 of the state Forest Practices Rules, the Forest Practices Board may adopt rules pertaining to management activities which impact western gray squirrels. These rules would provide further protection of the species' critical wildlife habitat.